

PERSGA

*The Regional Organization for the Conservation
of the Environment of the Red Sea & Gulf of Aden*



REDUCING
NAVIGATION RISK
AND MARITIME
POLLUTION

AL-SANBOUK

A Quarterly Newsletter of PERSGA

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PERSGA The Regional Organization for the Conservation of the Environment of the Red Sea and Gulf of Aden - PERSGA - is an intergovernmental organisation dedicated to the conservation of the coastal and marine environments in the region. Its legal basis stems from the Regional Convention for the Conservation of the Red Sea and Gulf of Aden Environment known as the Jeddah Convention and signed in 1982. The PERSGA member countries include Djibouti, Egypt, Jordan, Saudi Arabia, Somalia, Sudan, and Yemen. The headquarters are based in Jeddah, Saudi Arabia.

PERSGA is currently executing the Strategic Action Programme (SAP) for the Red Sea and Gulf of Aden. This project is funded by UNDP, UNEP, The World Bank and The Islamic Development Bank (IDB). The SAP is being carried out through seven complementary components: institutional strengthening, reduction of navigation risks and marine pollution, sustainable use of living marine resources, conservation of habitats and biodiversity, the establishment of a network of marine protected areas, support for integrated coastal zone management, and the enhancement of public awareness and participation.

The aim of the newsletter is to provide information on conservation and development activities taking place in the region together with articles on marine issues of general interest. The contents of the newsletter do not necessarily represent the position or views of PERSGA or the editorial board, nor do they imply the expression of any opinion on the part of PERSGA concerning the legal status of any country, territory, frontier or border.

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Dear reader,

Welcome to Al Sanbouk 15. In addition to our regular items describing the activities of PERSGA this edition of Al Sanbouk introduces to you some of the important work that is being carried out to make international shipping safer, giving benefits to the vessels, ship owners, insurance companies and, most importantly the environment and all who gain their livelihood from it. Following the maxim that "prevention is always better than cure", Component 2 of the Strategic Action Programme, aims to reduce navigation risks within the region and therefore to decrease the probability of shipping accidents and their inevitable polluting consequences.

The Red Sea and Gulf of Aden carry around 7% of global maritime trade. This translates into a huge number of vessels, 14,000 a year or more, traversing the narrow waterways with their coral reefs, submerged shoals and hidden dangers. In many parts of the world the International Maritime Organization (IMO) has established routes that separate vessels travelling in different directions, a simple technique and one that has undoubtedly prevented a large number of accidents over the years. Traffic passing through the Bab el Mandeb, and sailing east or west of the Hanish Islands do not have to follow any prescribed routes and this area is, as a direct consequence, one with a high navigational risk. To establish internationally accepted routes with traffic separated into lanes requires that these lanes are surveyed in advance to guarantee that they are safe from underwater obstructions. PERSGA has been extensively involved in hydrographic surveying and the identification of new routing measures as described in the articles "Hydrographic Surveying and Charting in the Southern Red Sea" and "The Avocet Rock".

A second important contribution to environmental protection is being made through efforts to establish a uniform Port State Control agreement within the region. Once implemented, trained inspectors have the power to board vessels visiting the port and inspect them to ensure that they meet internationally accepted standards of seaworthiness, construction, safety equipment, and crew. Vessels not meeting the standards may be prevented from sailing, or banned from visiting the port. Currently the Red Sea is one of the few areas in the world where no agreements have been made. As a result, old, substandard vessels with poorly trained crews can be used and they may sink or run aground because they are unseaworthy, badly manned, or even because they are worth more as an insurance loss.

The Red Sea and Gulf of Aden are areas where haze and dust storms often lower the captain's visibility. Despite the advent of GPS and radars, we rely heavily on visual clues for determining our position. This explains why lighthouses have always been so important as warning signs; as long ago as 1860 a lighthouse was established on Perim Island (Mayyun) in the strait of Bab el Mandeb. The current aids to navigation need continual maintenance, and more should be installed. However the ships that pass through the region without stopping at any port escape paying any contribution towards their upkeep. With an estimated USD 10 billion per year in ocean freight passing through these waterways, some small contribution towards the cost of navigation aids might be expected from all ships.

This work, funded by the World Bank, will make a significant contribution to the level of environmental protection within the region conferring benefits at the global, regional and national levels.

We hope you enjoy learning more about our work for the protection of the marine environment.


Captain Saeed Abdulla Al-Yafai
Minister of Transport & Maritime Affairs

Al-Sanbouk is the name given to wooden vessels powered by sail and engine that have taken goods to and from most ports in the Red Sea and Gulf of Aden for hundreds of years.



PERSGA Activities

Regional Fisheries Stock Assessments




The third Regional Living Marine Resources Working Group meeting was held in Hurghada (Egypt) from 30 June - 4 July and included a Workshop on Sustainable Management of Living Marine Resources in the Red Sea and Gulf of Aden. The main areas identified for co-operation included the assessment of shared fisheries stocks and their sustainable management. The laboratory and field facilities of the National Institute for Oceanography and Fisheries (NIOF) in Suez were visited.

The LMR Lead Specialist, together with six colleagues from the Ministry of Agriculture and Water (Fisheries Department), joined a fishing vessel working along the coastline of Gizan, Saudi Arabia. While onboard they conducted a bottom-trawl survey to collect data on shrimp for stock assessment purposes and to assess the variety and numbers of fish species caught in the by-catch. Shrimp and fish species were sampled, identified, photographed and specimens taken for measurement in the laboratory.

The trip established valuable contacts and agreements for cooperation in data transfer from the Department to PERSGA. The new Arabic version of the Field Guide to Sharks was evaluated by the enumerators at the Fisheries Department.


Standard Survey Methods for Habitats and Species



Two training courses for regional specialists were carried out from 24 June - 5 July at the Aqaba Marine Science Station. The first course covered "Standard Survey Methods for Coral Reefs" and the other "Standard Survey Methods for Seagrasses and Seaweeds". Sixteen regional participants attended the courses.

The fourth Regional Habitats and Biodiversity Conservation Working Group meeting was held in Jeddah from 22-23 September. During this meeting, planning and coordination took place for the regional ReefCheck surveys with the Khaled bin Sultan Foundation, which are currently scheduled for next April. Sets of equipment for turtle survey work have been prepared and distributed to each country in the region. The monitoring teams will use these when work is carried out from May to July next year.

Public Awareness, Social Marketing and Micro-Grants Programs



A Social Marketing survey is an activity that determines people's attitudes and their level of understanding of a particular issue, such as marine conservation or resource awareness, and then recommends the strategies that are the most appropriate in terms of the target audience and in terms of creating the necessary motivation to alter behaviour patterns. A Social Marketing survey has been conducted in several countries of the region. The results, presented at a workshop in Jeddah last October, included a brief on the perceived environmental problems, basic country statistics, recommendations, and proposed projects for public awareness.

In addition, a manual on Micro-Grant Programs has been prepared. This includes an organizational chart, progress indicators, duties of the regional committee and regional program coordinator, eligibility criteria, selection criteria as well as the proposal process. Thirty-eight proposed Micro Grant activities are included in the manual.

During the Public Awareness and Participation (PAP) Working Group meeting in Jeddah, held from 1-10 October, members were trained on how to conduct local social marketing studies and how to identify and prepare proposals for Micro-Grants towards small relevant projects.

Many public awareness activities have been carried out in NE Somalia as part of the Public Awareness campaign. Message boards with slogans were erected on appropriate sites carrying illustrations and slogans in Arabic, English and Somali. The opening ceremony and a first beach clean-up were held east of Bosaso where several tons of garbage were removed over a period of three consecutive days. Media coverage was extensive with several press releases.

Non-formal Environmental Education training courses have been conducted for teachers in Yemen, Sudan, NE Somalia and NW Somalia and environmental school clubs (ESC) have been established. A manual has been written which includes: Mechanisms for establishing school clubs, facilities required, mechanisms for teacher training, and regional ESC networking. At the PAP Working Group meeting participants discussed these activities and prepared detailed work plans and budgets for each country.



ICZM Third Working Group Meeting

Under the joint sponsorship of PERSGA/SAP, the Ministry of Tourism and Environment, and the General Agency for Environment Protection in Aden, Yemen hosted the Third Integrated Coastal Zone Management (ICZM) Working Group (WG) meeting. The WG meeting was held between the 9th and the 12th of September 2001.

The meeting spread over 4 days and included an introductory session about PERSGA and another about the ICZM component, several presentations about particular ICZM issues in the region, and one concerning navigation risks and marine pollution. It also included several workshops, a presentation on the results of the ICZM Pre-Assessment Survey conducted in Aden, and a field trip to a local coastal area.

Reduction of Navigation Risk and Maritime Pollution Second Working Group Workshop, Djibouti (1st - 4th July 2001)

The purpose of the workshop was to discuss the activities of the SAP Navigation Risk and Maritime Pollution component, to approve the Indicative Workplan for 2001-2003, to hold a discussion on the Marine Emergency Mutual Aid Centre (MEMAC) study carried out in May 2001 and to review its recommendations.

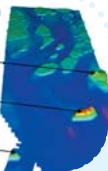
Outcome and Conclusions: After the opening session the subsequent sessions reviewed the results of the hydrographic survey and future plans, survey results, data analysis, traffic separation schemes, and contingency planning. The MEMAC Study Report and its relation to the Djibouti Stockpile Centre was carefully reviewed and suggested amendments to the report were made. The meeting also discussed MARPOL requirements, and the need for its ratification by PERSGA Member States so that the Red Sea and Gulf of Aden Region can be declared a Special Area. A draft 'Action Plan for Regional Contingency Planning' was prepared and agreed upon.

Area 1a View From North Navigational Features

Charterd Shoal
44m Confirmed

Abu Ali Islands

Charterd Shoal
26.2m Confirmed



The Fifth PERSGA Council Meeting, Cairo: 27 October 2001

After the approval of the proposed Agenda, the meeting reviewed the recommendations of the Preparatory Meeting and the two statements presented by the Secretary General on:

1. The SAP Special Review report.
2. The report on the Marine Emergency Mutual Aid Centre (MEMAC) and the Djibouti Stockpile Centre.

The most important decisions taken by the Council were:

- A. Approval of the Secretary General's report.
- B. With regard to the Special Review report: the continuation of the Chief Technical Advisor (CTA) position in addition to the new Technical Advisory Group if considered necessary; and the preparation of new Terms of Reference for the CTA position and their approval by Member Countries before an announcement for the position.
- C. With regard to the MEMAC Study and the Djibouti Stockpile Centre: Member Countries should designate part of their compensation funds from oil spill accidents to Environment Funds; and PERSGA should do its best to attract funds from donor agencies (such as the World Bank, EU, the Norwegian Government and oil producing companies) to fund the reactivation of the Djibouti Stockpile Centre as stated in the Report.

The Third Meeting of the Task Force for the Implementation of the Strategic Action Programme for the Red Sea and Gulf of Aden (SAP)

The third Task Force meeting for the Strategic Action Programme for the Red Sea and Gulf of Aden was held from 16-17 September 2001 in the Conference Room of the Meteorology and Environmental Protection Administration, Jeddah.

The meeting was attended by representatives from the PERSGA Member Countries, UNDP Riyadh and UNEP on behalf of the GEF Implementing Agencies, the Islamic Development Bank, and invited guests including a delegate from the Government of Eritrea. Representatives from the World Bank (Washington) and UNDP (New York) were unable to attend in person due to the disruption in airline services following the incidents of 11 September but were linked to the meeting via telephone-conference.

Dr. Saiyed Al Khouli (SAP Project Manager) gave a PowerPoint presentation in Arabic and English on the current state of SAP execution and the achievements made since the last Task Force Meeting. Professor Mustafa Tolba gave a presentation on the Special Review Report, an independent analysis of the current progress of the SAP prepared as an internal appraisal document.

A number of both complementary and critical remarks were made concerning the progress of the SAP. In particular, notice was taken of the significant positive steps taken by PERSGA since 1996 through the establishment and implementation of the SAP, creation of the regional Working Groups and initiation of the plans. It became clear that there is a need to clarify the expectations of the stakeholders and the tangible benefits that they expect to realise from the programme.

Some concern was raised about the rate of progress towards the targets, and that some aspects of the programme give the appearance of having a sub-regional slant.



Dr. Dirar Nasr (PERSGA-SAP Co-ordinator) delivered a presentation based on the consultants' report on the Marine Emergency Mutual Aid Centre (MEMAC). The Task Force were reminded that the establishment of a MEMAC was stipulated in the Protocol to the Jeddah Convention of 1982. At the 1989 Expert meeting in Alexandria the meeting accepted the offer made by the Government of Egypt to host the MEMAC at a site in Hurghada. The building is currently under construction. The role of the MEMAC centre, as stated in the Protocol, will be for information co-ordination and capacity building, the establishment of training programmes, and manpower development in the Member Countries. It will not have an oil spill combating function.

The need for a network of subregional centres for combating oil spills was recognised. PERSGA may assist in their establishment (identify sources of funding, support for operational training) but cannot take responsibility for operations, maintenance, or the conduct of oil spill clean-up activities.

A number of recommendations were drawn from the meeting. Some of the key ideas are listed below:

- All major documents should have an Executive Summary in French.
- The Task Force Terms of Reference will be reviewed in light of the discussions held and a revised version submitted to the Council for their approval.
- The coordination of training programmes will be centralised within the SAP to prevent overlaps and to review the benefits accrued. Training materials and consultant reports should be circulated to the Member Countries as soon as they are available.



Number of trainees from each of PERSGA's member countries, who received training through PERSGA / SAP activities

Jordan	Djibouti	Saudi Arabia	Sudan	Somalia	Egypt	Yemen
10	5	8	6	6	13	42

Reduction of Navigation Risk and Maritime Pollution

Hydrographic Surveying and Charting in the Southern Red Sea

In December 1998, Dr. Steven Lintner of the World Bank and Captain Saeed Yafai, Chairman of the Public Corporation for Maritime Affairs, Yemen, visited the United Kingdom Hydrographic Office (UKHO) in Taunton. The aim of the visit was to determine whether it would be possible for UKHO and PERSGA to work together to enhance shipping safety in the southern Red Sea, specifically by carrying out a hydrographic survey of the hazardous area around the Hanish Islands. The area had not been properly surveyed for over 120 years. It was vital for new surveys to be completed before a planned Traffic Separation Scheme could be introduced. UKHO, which is "responsible" internationally for the production of navigation charts for the Red Sea, agreed to provide the assistance required.

PERSGA was, and is, very aware that this enclosed body of water remains relatively undisturbed ecologically, but is under ever increasing danger from the threat of pollution from tank washing, bilge cleaning, garbage disposal and oil spills from ships. The Red Sea and Gulf of Aden form part of a major shipping route that carries over 7% of total world trade, including numerous oil tankers. The two streams of traffic, which travel northbound to the Suez Canal and southbound from it, are forced together by the Gulf of Suez in the north and by the Hanish Islands and the Straits of Bab el Mandeb in the south. Apart from the extensive and well-charted separation scheme in the Gulf of Suez, traffic in the Red Sea is for the most part unregulated and the southern end of this 1,200 mile route is considered

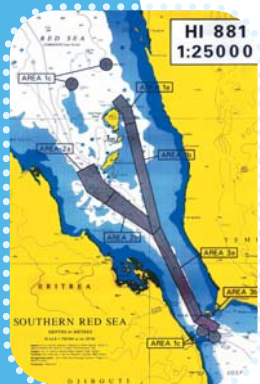
a high-risk zone for navigational accidents. A collision, grounding or other incident involving a large tanker is a statistical probability and one that would seriously damage the seagrass beds, mangrove forests and coral reefs in the area.

Work was formally initiated in April 1999. Terms of reference for the survey contract were prepared and World Bank procedures followed for selecting a company. Gardline Surveys, which has extensive experience in hydrographic work for nautical charting purposes, was contracted and mobilized its vessel Ocean Seeker for the 'winter season' in November 2000.

Since then the Ocean Seeker has surveyed an area of over 750 square nautical miles between the Avocet Rock, north of the Abu Ali Islands, the proposed route passing south and west of the Hanish Islands, and the connecting routes to the south through Bab el Mandeb into the Gulf of Aden. Surveys have been carried out to the highest international standards, as demanded by the International Maritime Organization (IMO). Echo soundings, side-scan sonar, magnetometry and sea-bed sampling have all been used to build up a picture of the underwater topography, while tides and currents have been monitored at key points in the area.

The work was hampered by unexpectedly adverse weather during the period between December 2000 and May 2001, but fortunately the ship was built to continue working under these rougher conditions. A fully equipped survey launch, kept on-board, was able to take advantage of the brief periods of calmer weather to carry out investigations closer inshore.

Results have been impressive. The ship has steamed over 21,000 kilometres and recovered around 900 sea-bed samples, most of which are now stored at the University of Sana'a in Yemen.



Three-dimensional pictures of the sea-bed reveal flat-topped submerged hills, cone-shaped structures rising steeply from the floor to appear as islands, the full extent of the dangerous Avocet Rock - seen for the first time as a plateau 400 m x 400 m and just six metres below the surface of the water, and several wrecks that had not previously been recorded.

One regional surveyor was able to spend a month on board the Ocean Seeker benefiting from exposure to modern survey equipment and methods, and at the same time contributing very positively towards the work of the vessel.

In all areas, however, the original design of the traffic separation scheme has been confirmed as sound, and this will enable PERSGA to present it to IMO for adoption as an "international routing measure". The new routing measures will be presented in 2002 and, if all goes well, they will be adopted by mid-2003.

This is a 'first' that PERSGA can be rightly proud to have been able to implement.

* Pictures:

[Ocean seeker](#) the survey vessel, [Chart showing the area surveyed and proposed new routes for shipping](#)

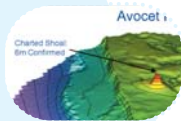


[The Avocet Rock](#)

During the early years of the 19th Century the Red Sea and Gulf of Aden were relatively quiet waterways. The movement of ships between ports was confined to local or regional trade within the 'enclosed' body of water. Exports from the region to Europe or the Americas could go north to the Gulf of Suez and then overland to the Mediterranean coast, or take the much longer passage south around the Cape of Good Hope. Ships were driven mainly by wind, with a small number of rather inefficient steamships just beginning to appear.

With the opening of the Suez Canal in 1869 and the development of the much more efficient triple-expansion steam engines, the situation changed. Steamships became faster, with greater range and size, able to carry more cargo. Coaling stations were established at Aden and on Perim (Mayyun) Island at the southern entrance to the Red Sea. By the 1880's a lighthouse had been built on Perim Island and maritime nations were discussing the urgent need for lighthouses or light vessels at Jabal At Tair, Zubair, and Abu Ali islands, as well as at Cape Gardafui, and on Socotra Island.

In the 1870's, extensive hydrographic surveys were carried out in the Red Sea between Bab el Mandeb and Jabal At Tair, with depths and positions measured using lead lines and sextants, the standard methods used up to the 1950's. Positions and coastlines of islands were determined and hazards such as the 3-foot rock south of Hanish Al Kubra were marked on the new charts. With greater knowledge of water depths and underwater topography, ships could sail with confidence through the hazardous waters of the southern Red Sea - or so it appeared.



A 'rock reported' notice was inserted in the February 1886 edition of chart GB143, published by the United Kingdom Hydrographic Office (UKHO) following reports of a new danger discovered in the general area between 14° 21'N, 42° 38' E and 14° 23'N, 42° 43'E. A year later, in March 1887, the SS Avocet reported striking a rock in position 14° 21'N, 42° 38'E, and the UK Admiralty recorded that "there appeared to be 24 feet of water on this rock". It certainly seemed that something was down there. On the other hand, in April, the HMS Flying Fish found depths in excess of 100 fathoms (600 feet) while investigating the reported shoal.

The existence of a serious danger to shipping was dramatically confirmed when, on 9 June 1887, the 2,017 tons SS Teddington hit an underwater obstruction and sank near the Avocet Rock's marked position. The new "Teddington Rock" was inserted on the chart in position 14° 23'N, 42° 42.5'E. It appeared that two rocks might exist in this area, but with hazy conditions making navigation out of sight of land uncertain at best, no one could be sure.

Later in 1887, HMS Sylvia carried out a survey to search for Avocet and Teddington Rocks. She ran over the reported position of the Avocet Rock and found depths of about 100 fathoms, then over the position of the Teddington Rock and found depths in excess of 30 fathoms. However, in 1888 HMS Stork while searching for Avocet Rock determined a least-depth of 15 feet in position 14° 22.13'N, 42° 34.5'E, some miles from the positions reported by both the SS Avocet and the SS Teddington!

By 1888 the maritime nations were recommending that lighthouses were 'absolutely necessary' for the southern Red Sea and should be built at Abu Ali, Mokha, Jabal Zubair and Jabal At Tair. Germany recommended that a light should also be placed on the Avocet Rock. The costs of the lights would have to be met by levies on ships passing through the Suez Canal and paid to the Government of Egypt.

In April 1894 the mystery deepened. A survey was carried out by HMS Egeria in the vicinity of a shoal reported by HMS Yarra in December 1892. The search, centred on 14° 19.6'N 42° 34.5'E with an approximate radius 2 nautical miles, revealed depths of over 210 feet.

The story then moves forward 100 years when, on 17th October 1990, UKHO was sent details of the grounding of the US reserve force vessel SS William J Callaghan in position 14° 22'N, 42° 37'E, i.e. 5 miles west of where Teddington Rock was thought to be. But the Egeria survey in 1894 had recorded depths of over 450 feet within a 1-mile radius of the position given by the

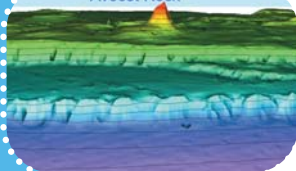
William J Callaghan!

A navigation warning was issued on 19th October 1990 for an "unknown obstruction" in position 14° 22'N, 42° 38'E, about a mile east of the Callaghan position. Examination of satellite pictures revealed no visible rock in either the position of Avocet Rock or in the position of the reported grounding of the SS Callaghan. In December 1991 UKHO received a comment from the HMS Tristen that she had passed over the position of the reported rock "several times without grounding". The only 'definite' was the uncertainty.

Up to this point all shoal investigations had been carried out by lead line with imprecise position fixing and the presence, or absence, of other rocks or shoals had not been disproved. In 1995, concerned about this rock, UKHO researched the matter and asked USS Littlehales to locate Avocet Rock. This they did, finding a least depth of 4.6 metres over the rock. However the survey only consisted of a few lines of soundings in the area of and over the rock, and it did not prove conclusively the extent of the obstruction or whether other shoals existed nearby.

In 1999 the UKHO worked with PERSEA to define the area to be surveyed for a new traffic separation scheme passing east and west of the Hanish Islands and down through the Bab el Mandeb. Tracks from the separation scheme were designed to take ships well clear of obstructions such as the Avocet Rock, but a number of important isolated patches were recommended for investigation, including a definitive survey of this particular underwater hazard.

Avocet Rock



Hence the first comprehensive survey of this area, using high precision echo sounders and tidal data, side scan sonar and satellite-based position-fixing equipment was initiated. It was carried out by Gardline Surveys Ltd. with financial support from the World Bank. On 17th April 2001 a message was received from Gardline advising that the survey had confirmed the existence of a serious navigational hazard in the form of a rocky shoal some 400m x 400m in extent, with an average depth of only 6 metres.

The impressive results cover an area of radius 2.5 nautical miles around the Avocet Rock. It is clearly shown as a hill rising steeply from a plateau, with submarine cliffs taking the sea bed down to a second and a third plateaux lying to the west of the rock. In May the survey vessel MV Ocean Seeker sent UKHO a Hydrographic Note confirming the existence of just one shoal in position 14° 22' 12.42"N, 42° 41' 57.29"E with a minimum depth of 5.9 metres.

One could ask how many smaller ships passed over this rock without harm before 1886. But with tankers now sailing with draughts of 22 metres, or even more, separation schemes and other 'safe routes' need to provide guaranteed depths that would have seemed incredible to mariners 150 years ago. The action taken by PERSGA has enabled international charting authorities to remove the doubt over the location and extent of a shoal close to the main shipping route through the Red Sea, a shoal with a history stretching back over 130 years and the cause of several maritime accidents.



* United Kingdom Hydrographic Office carries primary responsibility for charts in this area. PERSGA gratefully acknowledges the assistance of UKHO in providing archive records of the charting history of the Avocet Rock.

FUTURE Activities

Habitat and Biodiversity Conservation (HBC)

- ▶ During March 02 a regional training course on Standard Survey Methodology for Mangroves will be conducted in Djibouti. Sixteen regional specialists are expected to attend.
- ▶ On the 18th of March 02, and lasting for two days, a Working Group meeting will be held in Djibouti.

Living Marine Resources (LMR)

- ▶ During January & February 02 the 1st and 2nd Sub-Regional Training and Research Centers in Aden and in Jeddah will be upgraded with new equipment.
- ▶ A regional training course for fish enumerators will be conducted in March 02 and will cover the following topics: data collection, standardization of fisheries statistics.
- ▶ The component will be participating in the development of the structure and contents of the Regional Database, which will be developed for PERSGA by CEDARE, and will develop standards relating to boat/gear categories and species sub-areas.
- ▶ In cooperation with the Public Awareness and Participation (PAP) component, as part of the Micro-Grants Program, lobster traps will be distributed for fisheries in Yemen, Djibouti and Somalia to substitute for fishing gear currently in use.
- ▶ In preparation for the workshop, which will be conducted in April 02, the purchase of elasmobranch samples will take place. These samples will be stocked in the Sub-Regional training centers. The training course will be about "Population dynamics and stock assessment methods for elasmobranch".

Marine Protected Areas (MPA)

- ▶ A Train-Sea-Coast training course on MPA management will be conducted between the 6th and 13th of January 02.
- ▶ The first surveys of the proposed MPA will take place in Dongonab Bay in January 02, this work will be conducted through the National Wildlife Conservation General Administration under the management of the MPA component.

Integrated Coastal Zone Management (ICZM)

- ▶ Issuing of the special arrangements needed for ICZM in Aden.
- ▶ Appointment of specialists in Somalia, Djibouti and Sudan to prepare pre-assessment reports about coastal zones in their countries.

Preparations for the Establishment of Dongonab Bay and Mukkawar Island Marine Protected Area, Sudan

A Steering Committee has been formed made up of the primary government stakeholders that will be concerned with this proposed marine protected area. The first surveys will take place in Dongonab Bay in January 2002. The work will be overseen by and will be conducted through the national Wildlife Conservation General Administration, which is taking the lead responsibility. The core team for survey implementation has been identified and arrangements made to ensure their availability. The necessary equipment for underwater work has been located or purchased and includes diving kits, air compressor, generator and camping materials. A GIS consultant will conduct the preparatory work for the littoral and sublittoral ground-truthing using satellite imagery.

As part of the regional training initiative to prepare future MPA rangers, a SCUBA dive-training course was held in Djibouti for representatives from NE and NW Somalia, and from Djibouti.

